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THE RADICAL TREATMENT OF TRACHOMA.

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Radical Treatment of Trachoma.

FOR obvious reasons, there is no subject in the domain of ophthalmology of more importance to the general practitioner than the treatment of trachoma. In the discrimination between few diseases is less precision commonly observed than between those covered by the generic term, granulated lids. No treatment of the various affections of the conjunctiva can be even moderately successful which is not based upon a rational conception of its etiological and histological relations.

The remedy for the granular appearance which may manifest itself in lachrymal or atropine conjunctivitis must be found in securing proper drainage of the lachrymal secretion or the withdrawal of the irritating mydriatic. Neither must the papillary hypertrophy of the cylindrical epithelium which lines the conjunctiva from the edge of the lid to the bulbous portion be confounded with the hyperplastic developments and follicular infiltration, which occur in true trachoma.

This distinction is especially important, for while one condition is a disease of the epithelium, the other is a disease of the lymph follicle, originated by the introduction of a specific agent which operates below the surface, resulting in the accumulation of lymphoid products in subepithelial groups. These may manifest innocent or destructive tendencies depending on the balance between the vigor of the specific poison and the physiological vitality of the surrounding tissue which constantly strives to dominate the intruder.

This distinction is further important from the standpoint of treatment, because in the former case the surface, with its villi and sulci, is directly reached by such medicaments as may be topically applied, while in the latter the pathological products are concealed and protected by this same structure.

While the former has been amenable to treatment by astringents, stimulants and mild caustics intelligently ap-

plied, the trachoma follicle has defied the resources of medicine. So long as the follicular contents may be poured out on the surface it is thought to be contagious. Without sensible roughness a most persistent pannus or corneal ulceration may be the result of the presence of this poison. In the lid the irritation conduces to the infiltration from the blood of plastic elements which organize into connective tissue. By its shrinkage there is a constant tendency to force these follicles to the surface. They may multiply indefinitely, looking like frog-spawn, often completely covering the tarsus and fornix of both lids.

Shrinkage shortens the palpebral fissure, cups the tarsus, causing entropion or trichiasis with eventual atrophy of the palpebral conjunctiva and retrotarsal fold, resulting in limitation of the motions of the ball. The mucous surface may be destitute of moisture on account of the obliteration of the Meibomian and acinous glands (xerophthalmia).

It often takes years to run through its course, and it is scarcely surprising that the tardy recoveries, frequent relapses and disastrous consequences should produce a demand for some radical remedy. In response to this feeling three such remedies have been developed. In the inverse order of their importance they are:

1. Excision of the retro-tarsal fold.
2. Jequirity.
3. Enucleation of the trachoma follicles.

Though a radical procedure, the first deserves mention only because it had received the earnest commendation of the zealous Galezowski before the announcement of the superior merits of the latter two remedies. The suggestion to excise the retrotarsal fold was prompted by the condition to be found after years of suffering when the natural process had resulted in atrophy and loss of this fold. Though the disease is brought to a close by the destruction of the material necessary to its continuance, the jeopardy entailed by the consequent arrested lachrymal secretion, partial ptosis, limited motion with increased tendency to recurrent ulcers, is sufficient to condemn the procedure to disuse. It is considered by Hotz an "atrocious mutilation." It aims to effect a condition the avoidance

of which should command the thoughtful effort of the surgeon.

The second is much more worthy of consideration. Fresh in the minds of every one is the brilliant discovery of jequirity which marks an era in opthalmology. The sanguine assurances of the ardent enthusiast, DeWecker, translated into every civilized tongue and heralded with meteoric swiftness throughout the world, revolutionized the common practice.

For the time, under sway of the feeling of absolute safety, cases of trachoma under all possible conditions were subjected to the influence of the terrific inflammation produced by strong infusions of the bean. A large number of eyes were permanently cured, many more were benefitted, and some were lost, while all were more or less imperiled before the current of adverse criticism could arrest the indiscriminate use of this violent agent. It was recommended as containing a microbe potent to kill the hypothetic microbe of trachoma, being, at the same time, innocent or curative in the presence of complicated corneal ulceration. This proved to be an exaggeration of its merits, and the severe criticism brought upon it by the miscellaneous employment in unselected cases, has reversed the judgment of DeWecker, that it is uniformly safe. Under the influence of accrued experience it has come to be regarded as useless in acute cases, harmful when attended by much secretion, unsafe when the cornea is unaffected, and dangerous in the presence of ulceration. In cases of chronic trachoma with pannus it has won for itself an undisputed place.

When the cornea is fortified by an overlying network of vessels and connective tissue, jequirity has no equal. In numerous reported cases, and several in my own experience, in which the thickened lid covered a cornea so densely pannused as to hide the pupil and destroy all vision except perception of light, repeated courses of jequirity have rendered the lid soft and pliant, exterminated the disease, and in large part restored the transparency of the cornea.

Experience has also taught the avoidance of the strong infusion and frequent application, at first recommended with such unqualified praise. In the latter part of my ex-

perience, covering about one hundred and fifty cases, a one per cent. infusion of the decorticated bean has been employed, applying it to the inverted lids once in twelve hours, until the characteristic membrane or the requisite grade of inflammation was developed. By this practice it has been found that much less pain has been occasioned without causing the results to be less satisfactory.

The third procedure, enucleation of the trachoma follicle, will be found to commend itself to the rational practitioner, as well as the oculist, more highly than either of the others. It meets indications in which jequirity fails, and can be employed in the presence of any condition of the cornea or secretion. In it the most potent blow against this covert enemy has been struck.

It was first brought to notice by Mandelstam, of Moscow, who in GRAEFE'S ARCHIVES, 1883, recommended squeezing out the contents of these follicles. The procedure as recommended was simple.

The lid being everted and held by the thumb of the left hand, the nail of the right thumb is placed in the retrotarsal fold. The two thumbs are now pressed against one another including the lid and part of the reflected mucous membrane, thereby squeezing out the follicles, and breaking down the walls.

In the June number, 1886, of THE ARCHIVES OF OPHTHALMOLOGY, Dr. Hotz reports having employed the same method for the past five years, having discovered it by accident five years before the account of its Russian champion. "At this time," he says, "an exceedingly nervous patient with follicular trachoma and acute pannus came under my care. A violent spasm of orbicularis set in when I turned the upper eyelid; and as I pushed the everted lid upward in order to obtain a better view of the retrotarsal portion, I observed that the contents of the numerous trachoma follicles were squeezed out by the pressure of the orbicularis, in the form of gelatinous plugs, and by assisting this pressure a little with the thumb, I succeeded in thoroughly emptying all the follicles. The next day, I was actually surprised by the remarkable improvement. All acute irritation gone, relieved of photophobia and the heavy pressure of the lids; could open his eyes without

discomfort, and in a few weeks he was discharged as cured."

Since reading this interesting article written to condemn excision of the retro-tarsal fold, I have practiced this operation in a large number of cases, some of which had resisted two courses of jequirity and others had had repeated relapses and corneal complications.

In these obstinate cases the prompt response has been exceedingly gratifying. In some very chronic cases, on the second day the relief from photophobia and irritation has been complete.

In some cases the tarsi have been covered and both folds permeated by trachomatous bodies. In these cases, the branches of a curved clot- or iris-forceps were employed to grasp folds of the conjunctiva and by a stripping action enucleate these follicles. In this manner we may go over the whole of the affected area. Latterly I have used the forceps in all these cases, as it is more efficient than the counter-pressure exerted by the thumbs. When thoroughly performed the bleeding may be considerable. It is usually desirable, and the following reaction is very slight. It is to be regretted that owing to its superficial action cocaine fails to secure complete anesthesia except in a small minority of cases. However, when used in 8 per cent. solutions and repeatedly applied, the mitigating effect is sufficient to enable a large proportion to endure the operation without complaint. The after pain is comparatively slight, and may always be relieved by applications of hot water.

In radical attempts at trachoma enucleation, in those cases in which the tarsi and folds of both lids are densely infiltrated, the unequaled anesthetic qualities of bromide of ethyl[1] deserve recognition.

This agent when inhaled rapidly and deeply from a porous canvas cone in which two drams have been poured, produces in from thirty to sixty seconds a primary anesthesia of variable duration not exceeding one minute, during which a thorough enucleation of the trachomatous contents may be affected. If the patient fails to inhale as

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1 Bromide of ethyl for short operation.—*St. Louis Medical and Surgical Journal*, October, '83, by A. E. Prince.

directed or is not much influenced by the bromide, as exceptionally happens, it should be immediately reinforced by one or two drams of chloroform, which, combined with the former, will produce a satisfactory state of unconsciousness, from which the patient will usually quickly recover without sickness. I take the liberty of mentioning bromide of ethyl in this connection, because it is commonly regarded as an unsafe agent. This misapprehension has arisen from the unfortunate circumstance of its having been introduced to the profession as a substitute for chloroform and ether. In this misapplication for secondary or prolonged anesthesia, it proved quite toxic, (owing probably to decomposition and liberation of bromine in the system), whereas, when rightly used the patient awakes after a brief sleep without so much as a headache. At the Sanitarium it is always given as a precursor to chloroform and ether, and out of many hundred administrations no single evil consequence has been observed. Without it the tardy action makes chloroform and ether anesthesia ill adapted to so brief an operation as the above.

To complete the cure, I advise boroglyceride 50 per cent., or tannic acid, 5 per cent. in glycerine to be applied with a camel's hair pencil to the inverted lid every morning, and hydrarg. oxidi flav. one-half to one per cent. in vaseline every night. In irritable conditions the following soothing ointment will be found uniformly grateful:

Take	Vaseline, - - - - -	ʒss	grm. 16.
	Zinci oxidi - - - - -	gr. x.	" .65
	Iodoform, - - - - -	" v.	" .33

M. Sig. Apply three times a day.

The use of a local bath, with hot salt water, or one-half per cent. solution of carbolic acid several times a day often answers well.

The above may be supplemented by the occasional use of a crayon of alum, or sulphate of copper, or other favorite astringents. Attention to the general physical condition must ever be borne in mind; and when present the surgical indications furnished by entropion blepharo-phimosis and deficient lachrymal drainage must not be neglected.